

REMARKS

The Examiner has held that Claim 38 defines patentable subject matter. New Claim 41 is substantially equivalent to previous Claim 38, except that Claim 41 has been rewritten so as not to characterize the sides of the sealing plate with the terms "upstream" and "downstream". The claimed structure will work independently of a direction of fluid flow. Claim 41, because it includes the structural limitations of prior Claim 38, is believed allowable.

Of the remaining claims, the independent claims are Claims 28, 32, and 36. These claims are discussed below.

1. Claim 28

Claim 28, which pertains to the embodiment of Figures 6A and 6B, has been rejected over Quevado del Rio.

Quevado del Rio differs from the present invention, not only in that the direction of fluid flow is opposite to that of the present invention, but also in the structure of the dome itself. In Quevado del Rio, the dome is essentially a full hemisphere; in the present invention, the domed portion is less than a full hemisphere. See Figure 6B, which shows that the domed portion of the present invention is substantially less than hemispheric.

The full hemispheric structure of Quevado del Rio has the disadvantage that, for a given conduit diameter, it occupies more space than a corresponding domed portion of the present invention. The domed structure of Quevado del Rio, if used instead of the present invention, would extend much farther into the fluid conduit than would the domed portion of the present invention. The present claimed structure therefore has the

advantage that it is more suitable for applications where available space is limited.

Furthermore, the structure of Quevado del Rio clearly requires more material than the domed plate of the present invention, and would increase the shipping and handling costs associated with the product.

Applicant also submits that it would not be obvious to modify Quevado del Rio by reversing the convexity of the hemispheric portion. The diameter of the hemisphere in Quevado del Rio is larger than the diameter of the associated conduit. Thus, the hemisphere could not readily be reversed and still fit within the conduit. Thus, there is no suggestion, in Quevado del Rio, of modifying the disclosed structure to yield the present invention.

Finally, Applicant notes that the structure of Quevado del Rio is not even formed from a plate, as is claimed in the present invention, but rather is a machined casting. It would be impractical to form a hemispheric dome from a plate without excessive use of material, press stroke, force, and trimming operations. The claimed structure, in which the dome is less than a full hemisphere, is much more readily formed as a one-piece plate.

For the above reasons, Applicant submits that Claim 28 defines patentably over Quevado del Rio.

2. Claim 32

Claim 32 pertains to the embodiment of Figures 7A and 7B. This claim has been rejected over Miller.

The Examiner relies on Figure 6 of Miller, and notes that Miller has a convex dome which points toward the incoming fluid. However, the structure of Miller shows two domes, one (19a) which is concave and one (22) which is convex, relative to the direction of the fluid. The fluid contacts the concave surface of dome 19a, but does not impinge upon the convex surface of dome 22, because dome 19a effectively obstructs dome 22, relative to the incoming fluid flow.

Thus, the dome 22 of Miller does not serve the purpose of the domed portion of the present invention, because the convex surface of the dome (except for an insignificant portion near the orifice) cannot contact the fluid.

Applicant has amended Claim 32 to recite that the convex surface of the domed portion is substantially unobstructed to the flow of fluid from the first fluid component. This feature is the direct opposite of what is shown in Figure 6 of Miller, where the convex surface is obstructed by element 19a.

Applicant therefore submits that Claim 32 defines patentably over Miller.

3. Claim 36

Claim 36 relates to the embodiments of Figures 8A, 8B, 9A, and 9B. The Examiner has rejected Claim 36 over Puffer.

The structure of the present claimed invention is entirely different from that of Puffer. In the present invention, as is clearly illustrated in the above-cited figures, the sealing plate and the flange body are in direct abutment, and the sealing between the sealing plate and flange body is aided by a seal contained entirely within the flange body. In Puffer, the components identified as the "sealing plate" and the "flange body" are separated by a gasket G. Moreover, the gasket G is not contained within the flange body, but instead is exposed to the outside.

Applicant has amended Claim 36 to emphasize these features more specifically. Claim 36 now recites that the sealing plate and flange body abut each other directly. This limitation is intended to distinguish over Puffer, in which the analogous components are separated by a gasket. Also, Claim 36 has been amended to recite other structural features of the device, namely the seal which is fully enclosed within the bore of the flange body. The claim also recites that this seal is in contact with the sealing plate, but without preventing the sealing plate and flange body from directly contacting each other. These features have no analog in Puffer.

Claim 36 has also been amended to remove its recitation of a direction of fluid flow. The claimed structure is intended to work regardless of the direction of flow.

Claim 39, which contained some of the features now recited in Claim 36, has been cancelled as redundant.

Applicant submits that the limitations of Claim 36 are neither shown

nor suggested by Puffer, and that Claim 36 is therefore allowable.

All of the remaining pending claims depend, directly or indirectly, from one of the independent claims discussed above. Therefore, all of these claims are also believed allowable.